



Training Manual for NPDES Permit Writers

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permitting authority must make this determination at each permit reissuance and must develop permit limits that will control the discharge.

When conducting an effluent characterization, the permit writer is essentially projecting the concentration of the pollutant(s) contained in the effluent once the effluent enters the receiving water. The permit writer then compares this projected receiving water concentration to the applicable State water quality criteria. If the projected concentration exceeds the applicable water quality criteria, the permit writer has established that WQBELs are needed.

In making a determination of the need for a permit limit for WET or an individual toxicant, the permit authority is required to consider, at a minimum, existing controls on point and nonpoint sources of pollution, the variability of the pollutant or pollutant parameter in the effluent, the sensitivity of the species to toxicity testing (for whole effluent), and where appropriate, the dilution of the effluent in the receiving water (40 CFR 122.44(d)(ii)).

6.3.1 *Determination of the Need for WQBELs With Effluent Monitoring Data*

When characterizing an effluent for the need for a WET, and/or an individual toxicant limit, the regulatory authority should use any available effluent monitoring data as the basis for a decision. The regulatory authority may already have effluent toxicity data available from previous monitoring or it may decide to require the permittee to generate effluent monitoring data prior to permit issuance or as a condition of the issued permit. EPA recommends monitoring data be generated on effluent toxicity prior to permit limit development for the following reasons: (1) the presence or absence of effluent toxicity can be more clearly established or refuted, and (2) where toxicity is shown, effluent variability can be more clearly defined.

6.3.2 *Determination of the Need for WQBELs Without Effluent Monitoring Data*

If the permit authority so chooses, or if the circumstances dictate, the authority may decide to develop and impose a permit limit for WET or individual toxicants without facility-specific effluent monitoring data. WQBELs can be set for a single parameter or WET based on the available dilution and the water quality criterion or State standard in the absence of facility-specific effluent monitoring data. In justification of a limit, EPA recommends that the more information the authority can acquire to support the limit, the better a position the authority will be in to defend the limit if necessary. In such a case, the regulatory authority may well benefit from the collection of effluent monitoring data prior to establishing the limit.

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chronic toxic units (4 TUC); if an acute test result is a LC50 of 50 percent, that result can also be expressed as 100/50 or 2 acute toxic units (2 TUA).

It is important to distinguish TUA (acute toxic units) from TUC (chronic toxic units). The difference between TUA and TUC can be likened to the difference between miles and kilometers. In order to compare a TUA and a TUC, an acute-to-chronic ratio (ACR) needs to be used. The ACR is a conversion factor that changes TUA into equivalent TUC. The $ACR = LC50/NOEC$. If data are insufficient to calculate an ACR, EPA's TSD recommends a default value of $ACR = 10$.

6.2.3 *Biological Criteria or Biological Assessment Approach*

This approach is used to assess the overall biological integrity of an aquatic community in order to protect water quality standards and to define designated uses of waterbodies. A bioassessment is an evaluation of the biological condition of a waterbody using biological surveys and other direct measurements of resident biota in surface waters. A biosurvey consists of collecting, processing, and analyzing representative portions of a resident aquatic community to determine the community structure and function.

The biocriteria approach first involves the use of numeric or narrative values to describe the biological integrity of aquatic communities in a reference waterbody, and then biosurveys are used to collect information on the overall health of aquatic communities in a waterbody of interest. The results of the biosurveys are compared to the reference waterbody to determine if the criteria are met. EPA issued guidance on this approach in the *Biological Criteria: National Program Guidance for Surface Waters*.

6.3 DETERMINATION OF THE NEED FOR A WQBEL

Once the applicable designated uses and water quality criteria for a waterbody are determined and, if after technology based limits are applied, the receiving water concentrations still exceed the water quality standards, the discharges into such waters are subject to further reduction. EPA regulations at 40 CFR 122.44(d) require that all effluents be characterized by the permit authority to determine the need for WQBELs to control the discharge.

The purpose of effluent characterization is to determine whether the discharge causes, has the reasonable potential to cause, or contributes to an excursion of numeric or narrative water quality criteria. EPA's regulation at 40 CFR 122.44(d)(1) establishes grounds for determining if there is an excursion of the numeric or narrative water quality criteria. At a minimum, the

ATTACHMENT 2

327 IAC 5-2-11.1



pursuant to subdivisions (1) and (2), indicate *[sic, indicates]* that such additional requirements or limitations are necessary.

(g) The department shall use the representative ambient upstream concentration of a substance in determining the water quality-based effluent limitations for that substance. This upstream concentration shall be determined by the department on a case-by-case basis, using existing, acceptable data for the receiving water. Where limited or no acceptable data exists, the permittee shall be required to supply the necessary data. Whenever the representative ambient upstream concentration for a substance in the receiving water is determined to be greater than any applicable water quality standard for that substance, the following conditions apply:

(1) If the source of the wastewater is not the receiving water, the permit limitations shall be calculated using the applicable water quality standard and a value of zero (0) for the upstream dilution flow. Except for substances defined as bioaccumulative chemicals of concern, the department may establish limitations greater than the applicable water quality standard for the substance as required in this subdivision, in a range up to, but not greater than, the lesser of the representative ambient upstream concentration of the substance in the receiving water or the representative ambient concentration of the substance in the body of water at the point of intake. The limitation shall only be increased above the standard if it is demonstrated to the department that the concentration of the substance in the body of water at the point of intake exceeds the applicable standard for that substance and that reasonable, practical, or otherwise required methods are implemented to minimize the addition of the substance to the wastewater.

(2) If the source of the wastewater is the receiving water, the effluent limitation for that substance shall equal the representative ambient upstream concentration of that substance in the receiving water as determined by the department. Where circumstances allow, such as the discharge of once through noncontact cooling water, this will be implemented through the use of net limitations, with a net limitation of zero (0) being applied to the effluent. The representative ambient upstream concentration applicable to this subdivision shall be established at the upper ninety-ninth percentile of the available acceptable upstream data or otherwise appropriately determined as the reasonably expected upstream concentration for that substance.

(h) In addition to the requirements of 40 CFR 122.43(a), NPDES permits shall include limitations more stringent than promulgated effluent limitations guidelines from

sections 301, 306, 307, 318, and 405 of the CWA where necessary to achieve water quality standards established under section 303 of the CWA, including narrative criteria for water quality as follows:

(1) Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the commissioner determines are, or may be, discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any narrative or numeric water quality standard promulgated under 327 IAC 2-1-6.

(2) When determining whether a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above a narrative or numeric criteria within an Indiana water quality standard, the commissioner shall use procedures which account for existing controls on point and nonpoint source of pollution, the variability of the pollutant or pollutant parameter in the effluent, the sensitivity of the species to toxicity testing (when evaluating whole effluent toxicity), and, where appropriate, the dilution of the effluent in the receiving water.

(3) When the commissioner determines, using the procedures in subdivision (2), that a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above the allowable ambient concentration of a numeric criteria from 327 IAC 2-1-6 for an individual pollutant, the permit must contain effluent limitations for that pollutant.

(4) When the commissioner determines, using the procedures in subdivision (2), that a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above the numeric criterion for whole effluent toxicity, the permit must contain effluent limits for whole effluent toxicity.

(5) Except as provided in this subdivision, when the commissioner determines, using the procedures in subdivision (2), toxicity testing data, or other information, that a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above a narrative criterion from 327 IAC 2-1-6, the permit must contain effluent limitations for whole effluent toxicity. Limitations on whole effluent toxicity are not necessary where the commissioner demonstrates in the fact sheet or briefing memo of the NPDES permit, using the procedures in subdivision (2), that chemical-specific limits for the effluent are sufficient to attain and maintain applicable numeric and narrative water quality standards.

(6) Where a water quality criterion has not been established for a specific chemical pollutant that is present in an effluent at a concentration that causes, has the reasonable potential to cause, or contributes to an excursion above a narrative criterion from 327 IAC 2-1-

6, the commissioner must establish effluent limits using one (1) or more of the following options:

(A) Establish effluent limits using a calculated numeric water quality criterion for the pollutant which the commissioner demonstrates will attain and maintain applicable narrative water quality criteria and will fully protect the designated use. Such a criterion may be derived using a proposed state criterion, or an explicit policy or rule interpreting the narrative water quality criterion, supplemented with other relevant information which may include:

- (i) EPA's Water Quality Standards Handbook, October 1983;
- (ii) risk assessment data;
- (iii) exposure data;
- (iv) information about the pollutant from the Food and Drug Administration; and
- (v) current EPA criteria documents.

(B) Establish effluent limits on a case-by-case basis, using EPA's water quality criteria, published under section 307(a) of the CWA, supplemental where necessary by other relevant information.

(C) Establish effluent limitations on an indicator parameter for the pollutant of concern, provided the following:

- (i) The permit identifies which pollutants are intended to be controlled by the use of the effluent limitation.
- (ii) The fact sheet required by 327 IAC 5-3-8 sets forth the basis for the limit, including a finding that compliance with the effluent limit on the indicator parameter will result in controls on the pollutant of concern which are sufficient to attain and maintain applicable water quality standards.
- (iii) The permit requires all effluent and ambient monitoring necessary to show that during the term of the permit the limit on the indicator parameter continues to attain and maintain applicable water quality standards.
- (iv) The permit contains a reopening clause allowing the permitting authority to modify or revoke and reissue the permit if the limits on the indicator parameter no longer attain and maintain applicable water quality standards.

(7) When developing water quality-based effluent limits under this subsection, the commissioner shall ensure the following:

(A) The level of water quality to be achieved by limits on point sources established under this subsection is derived from, and complies with, all applicable water quality standards.

(B) Effluent limits developed to protect a narrative water quality criterion, a numeric water quality criterion, or both, are consistent with the assump-

tions and requirements of any available waste load allocation for the discharge prepared by the commissioner and approved by EPA pursuant to 40 CFR 130.7.

(i) Water quality-based limitations may be expressed, where appropriate, in terms of toxicity or toxic units (TU), e.g., the LC₅₀ for fathead minnow of the effluent from outfall 001 shall be greater than one hundred percent (100%) or shall not exceed one (1) TU. (*Water Pollution Control Board; 327 IAC 5-2-11.1; filed Feb 1, 1990, 4:30 p.m.: 13 IR 1043; filed Feb 26, 1993, 5:00 p.m.: 16 IR 1749*)

327 IAC 5-2-12 Schedules of compliance

Authority: IC 13-1-3-4; IC 13-1-3-7; IC 13-7-7; IC 13-7-10-1

Affected: IC 13-1-3; IC 13-7

Sec. 12. (a) Where appropriate, permits shall contain schedules of compliance requiring the permittee to take specific steps to achieve expeditious compliance with applicable standards and limitations and other requirements, including water quality-based limitations and requirements. A schedule of compliance shall require compliance as soon as reasonably possible, but not later than the earlier of the following:

- (1) An applicable statutory deadline.
- (2) A deadline specified in a rule establishing applicable limitations, standards, or other requirements. or
- (3) If no statutory or regulatory deadline is expressly applicable, three (3) years from the date applicable standards, limitations, or other requirements are incorporated into the permit.

(b) If any permit allows a time for achieving final compliance which exceeds nine (9) months from the date of permit issuance, the schedule of compliance in the permit shall set forth interim requirements and the dates for their achievement.

- (1) In no event shall more than nine (9) months elapse between dates specified for interim requirements.
- (2) If the time necessary for completion of any interim requirements (such as the construction of a treatment facility) is more than nine (9) months and is not readily divisible into stages for completion, the permit shall specify interim dates not more than nine (9) months apart for the submission of reports of progress toward completion of the interim requirements.

(c) A permittee may terminate its direct discharge by cessation of operation or discharge to a POTW rather than achieve applicable standards and limitations by the final date for compliance established in its permit or in the CWA.

- (1) If the decision to terminate a direct discharge is made after issuance of a permit:

ATTACHMENT 3

EVOLUTION OF 327 IAC 2-1-6(j)

LAKE MICHIGAN STANDARDS



ATTACHMENT 3

EVOLUTION OF 327 IAC 2-1-6(j) LAKE MICHIGAN STANDARDS

The Lake Michigan Standards, based on their regulatory history and scientific basis, should apply at the edge of the total mixing zone. The current 6(j) standards for non-toxics have descended from water quality criteria issued by the Technical Committee of a Federal Water Pollution Control Administration (FWPCA) and adopted by the conferees during a conference held on February 2, 1966 on the pollution of the interstate waters of Lake Michigan and their tributaries.¹ These criteria were established, as stated in the report², to "... be used as guides in judging the suitability of water quality for various uses and in planning improvements in water quality through waste reductions where needed, but would not necessarily be applied as standards or requirements". The Committee agreed that criteria should be based on:

1. Present and potential water uses.
2. Preservation of present good quality.
3. Improvement of degraded quality where technically and economically feasible.
4. Reconsideration and revision at regular intervals as future developments may dictate.

The committee further agreed that adoption of uniform criteria for specific uses, regardless of location of uses, would not provide a practical basis for a pollution abatement program for Lake waters. It is mentioned (as an example) that the sheltered areas between the Calumet Harbor Breakwater and the Indiana Harbor Bulkhead receive the major discharges

¹ Pollution of the Interstate Waters of the Grand Calumet River, Little Calumet River, Calumet River, Wolf Lake, Lake Michigan and their Tributaries. Conclusions of Technical Session. Held at Chicago, Illinois on February 2, 1966. FWPCA. This was part of a series of conferences held from 1964 to 1969.

² Report of Water Quality Criterion Calumet Area - Lower Lake Michigan, Fourth edition, FWPCA Technical Committee, January 14, 1966.

from waste sources and that it was impractical to expect the quality of water in this area, regardless of the degree of waste treatment achieved, to equal the quality of water found several miles out in the open Lake.

Based on this reasoning, the committee divided the water area of the lower Lake into three zones. One zone was described as Open Water and consisted of the area of water that was 200 yards offshore and outside of a line from the outer end of the Calumet Harbor Breakwater to and along the outer edge of the Inland Steel Bulkhead Line and thence through the U.S. Steel water supply (now USX) intake to the outer end of the Gary Harbor Breakwater. A second zone, the Inner Harbor Basins, was the area shoreward of the above line, but not including Shore Water. Shore Water was all water within 200 yards of shore except in the Inner Harbor Basins, where it is that water within 200 yards of existing onshore recreational areas. Amoco's current discharge (and proposed diffuser location) is located in what was then defined as the "Inner Harbor Basins" zone.

General existing or potential water use categories were assigned to each of these three zones and criteria were developed for each of these categories. The water use categories defined by the technical committee include:

- | | |
|--|--|
| 1.) Recreation (Whole Body Contact and Limited Body Contact) | |
| 2.) Municipal Water | 3.) Industrial Water (Process - Cooling) |
| 4.) Fish and Wildlife | 5.) Commercial Shipping |
| 6.) Aesthetics | 7.) Wastewater Assimilation |

The existing and potential water use categories assigned to each zone are presented below:

USES	OPEN WATER	INNER HARBOR BASINS (AMOCO)	SHORE WATER
Municipal Water	X	X	
Industrial Water (Processing and Cooling)	X	X	
Recreational (Whole Body Contact)			X
Recreational (Limited Body Contact)	X	X	X
Fish & Wildlife	X	X	X
Commercial Shipping	X	X	
Aesthetics	X	X	X
Wastewater Assimilation	X	X	X

Twenty-six constituents were considered for judging the zones of water based on the assigned water use categories for each zone. The constituents for both Open Water and the Inner Harbor Basins were the same according to the Technical Committee. Numeric values were selected for each constituent for each water use. Once the complete tabulation of values for all water for a zone had been developed, the most stringent value was selected as the criteria for that zone. As an example, for a shore water zone, a criteria for phenol-like substances was based on judging the water for fish and wildlife use, as this value was more stringent than the values for phenol-like substances for other uses. A selection of the constituents considered for water quality criteria are presented below:

CONSTITUENT	USES (See Key Below)								
	1	2	3	4	5	6	7	8	9
pH	X	X	X		X	X	X		
Dissolved Oxygen	X	X			X	X			X
Ammonia Nitrogen	X	X				X			
Chloride	X	X							
Fluoride	X								
Dissolved Iron	X								
Phenol-like Substances	X	X				X			
Sulfates	X								
Phosphates (Total)	X							X	
Filterable Residue (TDS)	X	X							

Uses Key:

- | | |
|--------------------------------------|----------------------------|
| 1. Municipal Water | 6. Fish and Wildlife |
| 2. Industrial Water - Processing | 7. Commercial Shipping |
| 3. Industrial Water - Cooling | 8. Aesthetics |
| 4. Recreation - Whole Body Contact | 9. Wastewater Assimilation |
| 5. Recreation - Limited Body Contact | |

The FWPCA Technical Committee report did not state the origin of the values or criteria, nor the scientific justifications with respect to water use. Most of the criteria appear to be based on protecting drinking water intakes and drinking water treatment plant operations, hence protecting the quality of drinking water supplied to the public.

The Technical Committee recommended that: "the following sampling stations serve as control points to judge compliance with the recommended criteria:

Open Water

1. Chicago South District Filtration Plant - Dunne or Shore Intake Crib, or both in combination.
2. Gary Water Intake, West.

Inner Harbor Basins

1. Hammond Water Intake.
2. East Chicago Water Intake.

Shore Water

Existing sampling points at bathing beaches."

The criteria proposed by the Technical Committee were adopted by the Indiana Stream Pollution Control Board as SPC-4 through SPC-8 on May 5, 1967. These criteria are presented on Table A3-1. As promulgated in 1967, the waters in the vicinity of Amoco were to be judged at the Hammond and East Chicago Water Intakes and compared to the SPC-6 criteria. It should be noted that of the 1967 Inner Harbor criteria, only two are equivalent to the current 6(j) or 6(b)(5)(c) standards.

In 1966, there were no specific federal standards to protect drinking water quality. The Federal Water Pollution Control Act was not passed until 1972, and the Safe Drinking Water Act was not enacted until 1974 as presented in Figure A3-1. Consequently, the conferees needed to have some criteria that considered the suitability of Lake Michigan water for drinking without water treatment.

As presented in Figure A3-2, the Lake Michigan criteria were originally developed as standards for the waters of Lake Michigan, not discharge effluents. In 1978, the application point was defined as outside the mixing zone 327 IAC 2-7-4(6)(8). In 1990, however, the language for the Lake Michigan Standards in 327 IAC 2-1-6(j) was changed without explanation so that these standards for non-toxic substances are now applicable to "waters in Lake Michigan", instead of to "the open waters of Lake Michigan". Therefore, the point of

application where the 6(j) standards were to be met changed from bathing beaches and potable water intakes to "waters" in Lake Michigan. IDEM has interpreted this to be applied at the end of effluent discharge structures. This shift is also shown in Table A3-1.

Under current 327 IAC 2-1-6(k), a mixing zone for temperature for a Lake Michigan discharge can be an arc of 1,000 ft. The Lake Michigan ammonia criteria, as defined under 327 IAC 2-1-6(b)(5)(C), also have to be met outside the mixing zone. It is reasonable to assume that the remaining standards were meant also to be applied outside the mixing zone based on their regulatory history (See Figure A3-1 and A3-2). IDEM and the Water Pollution Control Board acknowledged that the requirements for the Lake Michigan non-toxic substances should be revised during the next review of Article 2. In his Findings of Facts and Recommendations (November 28, 1989), the Hearing Officer for the Water Pollution Control Board of the State of Indiana recommended that "... in the next review/revision of the rule, changes be considered which would allow for the determination of a mixing zone for discharges into Lake Michigan on a case-by-case basis for substances listed in 327 IAC 2-1-6(j)". Additionally, several representatives of IDEM have recently suggested that the 6(j) standards may need to be repealed. IDEM's statements seem to acknowledge that the 6(j) standards are not necessary in light of the adoption of Table 1 of Indiana's 1990 water quality standards and wasteload allocation procedures and the adoption of Safe Drinking Water Act standards by USEPA.

As presented in Table A3-1, the current 6(j) standards do not reflect the entire list that was adopted in 1967. Many of the constituents were removed from the 1967 list. It is not entirely clear why constituents were dropped over time. Of the current nontoxic constituents, pH, phenols, fluorides, and dissolved iron seem to be based on drinking water aesthetic thresholds or drinking water plant operational limits. The average background concentrations

TDS are presented in many of the proceedings including "Pollution of the Interstate Waters of the Grand Calumet River, Little Calumet River, Calumet River, Wolf Lake, Lake Michigan and their tributaries, Progress Evaluation meeting" held at Chicago, Illinois on March 15, 1967. Volume 1, and the document "Pollution of the Interstate Waters of the Grand Calumet River, Little Calumet River, Calumet River, Wolf Lake, Lake Michigan and Their Tributaries." Proceedings of Conference Held at Chicago, Illinois, on March 2-9, 1965. Volume 3. Documents by the Federal Water Pollution Control Administration - Washington, D.C. - 1967 and the Public Health Service (Later the Federal Water Pollution Control Administration) - Washington, D.C. - March 9, 1965. This data are summarized in Table A3-2. It is suspected that the TDS, sulfate, and chloride Lake Michigan guidance values presented at the February 1966 conference were based on the background water quality data for Lake Michigan as monitored at these intakes. The regulatory history behind many of the 6(j) standards are presented as Tables A3-3 through A3-11.

SUMMARY

- Lake Michigan standards were to be used as guides in judging the suitability of water quality for various uses and in planning improvements in water quality through waste reductions where needed, but would not be applied as standards or requirements.
- 6(j) standards were primarily based on drinking water supply issues. Of the current (1990) 6(j) standards (consisting of nine constituents), only three constituent criteria considered fish and wildlife uses.
- Indiana adopted the 6(j) standards in 1967 and established control/monitoring points at water intakes or bathing beaches. Application of these standards (until 1990) was not applied directly to effluent discharges.

CONCLUSION

Amoco concludes, based on a scientific and regulatory review of the history of 6(j) criteria development, that the 6(j) criteria were never intended to be applied as standards or requirements inside the total mixing zone (TMZ). Instead, a close review of development of the 6(j) criteria indicate that the 6(j) criteria were to be used only as a guide in judging the suitability of water quality for various uses and were to only be applied at water intakes or at bathing beaches. Amoco's proposed mixing zone will not encompass drinking water intakes or bathing beaches. Thus, the 6(j) standards should be applied outside of Amoco's TMZ.

TABLE A3-1. EVOLUTION OF CURRENT 327 IAC 2-1-80J) STANDARDS

Parameter	Definition of Criteria	Units	Regulation SPC 1 (1945) All Waters	SPC 4 - (1967) Lake Michigan Open Water (@Gary-Hobart and Michigan City Intake(1))	SPC 5 - (1967) Lake Michigan Shore Water (@Bathing Beaches (2)) <1,000 - <5,000	SPC 9 - (1967) Lake Michigan Inner Harbor Basins (@Hammond and East Chicago Intakes (3))	327 IAC 2-1-80J(1980) Lake Michigan (4)
Coliform	Whole Body Contact Open Water Water Supply Source	#Col/100 mL #Col/100 mL #Col/100 mL		<200			
Oil				Free of	Free of	<2,000	No Limit
D.O.	24 Hr. Avg. Minimum	mg/L				Free of	No Limit
pH		% Sat					7.0
	Yr. Avg. Daily Med.	% Sat					
True Color	Single Value	S.U.		Single Value <=80% Yr. Avg. <=80%	Single Value <=80% Yr. Avg. <=80%	Not <65% single daily Not <80% annual average	7.5-8.5
Threshold Odor (H.C. and/or Chem.)	Single Value	S.U.		8.1 - 8.4 7.7 - 9.0	7.0 - 9.0	8.0 - 8.5 7.5 - 9.0	
	Mo. Avg.	Units		Yr. Avg. <=5 <=15	Yr. Avg. <=5 <=15	Yr. Avg. <=5 <=15	
	Single Value	Units					No Limit
	24 Hr. Avg.	Units					
	Single Value	Units					
Turbidity		Units					
Ammonia as N	Mo. Avg.	mg/L		None, other than natural	None, other than natural	Yr. Avg. <=5 <=20	No Limit
	Single Value	mg/L		Yr. Avg. 0.02 0.05	Yr. Avg. <=0.05 <=0.12	Yr. Avg. = 0.05 0.12	No Limit
Methylene Blue	Yr. Avg.	mg/L					
Active Substances	Single Value	mg/L		<=0.05 <=0.20	<=0.02 <=0.05	<=0.10 <=0.30	No Limit
Chlorides	Mo. Avg.	mg/L		1965 70 80 90 2000 Yr. Avg. <=8 9 10 11 12 <=15 Through 1970		1965 70 80 90 2000 Yr. Avg. <= 16 18 20 22 24 <=30 Through 1970	15 20 20
Cyanide	Single Value	mg/L		<=0.025	<=0.025	<0.1	No Limit
Fluorides	Mo. Avg.	mg/L		Yr. Avg. <=1.0 <=1.3		Yr. Avg. <=1.0 <=1.3	1.0
Dissolved Iron	Single Value	mg/L					
	Mo. Avg.	mg/L		Yr. Avg. <=0.15 <=0.30	Yr. Avg. <=0.15 <=0.30	Yr. Avg. <=0.15 <=0.30	0.30
Phenol-like Substances	Single Value	mg/L		Yr. Avg. <=0.001 <=0.003		Yr. Avg. <=0.002 <=0.005	0.001 0.003
Sulfates	Mo. Avg.	mg/L		1965 70 80 90 2000 Yr. Avg. <= 23 24 26 28 30 <=50 Through 1970		1965 70 80 90 2000 Yr. Avg. <= 35 36 39 42 45 <=75 Through 1970	28 50
Phosphorus, Total	Single Value	mg/L		Yr. Avg. <=0.03 <=0.04	Yr. Avg. <=0.03 <=0.04	Yr. Avg. <=0.05 <=0.10	0.03 0.04
Filtrable Residue (TDS)	Mo. Avg.	mg/L		1965 70 80 90 2000 Yr. Avg. <= 162 165 172 179 186 <=200 Through 1970		1965 70 80 90 2000 Yr. Avg. <= 187 190 197 204 211 <=230 Through 1970	172 200

(1) Monitoring at Public Water Supply Intakes to Evaluate Quality of Water

(2) Applicable at existing sampling points at bathing beaches (11 municipal beaches)

(3) Area between the shore and a line from the Calumet Harbor breakwater to and along the outer edge of the Inland Steel bulkhead line and thence through the U.S. Steel water intake to the outer end of the Gary Harbor breakwater.

(4) "Waters in Lake Michigan Shall Meet the Following Limits"

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TABLE A3-2. SOUTH END OF LAKE MICHIGAN BACKGROUND WATER QUALITY

CONSTITUENT	UNITS	(1) 1957 - 1964 INTAKE AT WHITING	(2) 1966 INTAKES AT		
			EAST CHICAGO	HAMMOND	DUNNE CRIB
Chlorides Single Value	mg/L	7.6	10	10.3	9.3
	mg/L	38	13	13	12
Sulfates Single Value	mg/L		24.9	24.9	22
	mg/L		36	38	32
Filterable Residue (TDS) Single Value	mg/L		164	167	157
	mg/L		211	275	196

Notes:

- (1) "Pollution of the Interstate Waters of the Grand Calumet River, Calumet River, Wolf Lake, Lake Michigan and Their Tributaries." Proceedings of Conference, Chicago, Illinois, March 2-9, 1965, Vol. 3.
- (2) "Pollution of the Interstate Waters of the Grand Calumet River, Little Calumet River, Calumet River, Wolf Lake, Lake Michigan and Their Tributaries." Progress Evaluation meeting, Chicago, Illinois, March 15, 1967, Vol. 1.

TABLE A3-3. CHLORIDES CRITERIA APPLICATION HISTORY

DATE	CRITERIA	JUSTIFICATION/POINT OF APPLICATION
1962:	250 mg/L	Economic Damage
1963:	> 250 mg/L	Unsatisfactory as public water supply - palatability
	< 125 mg/L	Acceptable as public water supply
	< 50 mg/L	Acceptable as industrial water supply
December 1965:	Report of WQC Calumet Area-Lower Lake Michigan Difficulties in water treatment, aesthetic value, background concentration	
	8 to 10 mg/L (1965 to 2000) 15 mg/L	Open Water (Chicago and Gary West Intakes)
	16 to 24 mg/L (1965 to 2000) 30 mg/L	Inner Harbors (Hammond and East Chicago Intakes)
1972:	250 mg/L	Taste and not removed by Drinking Water Treatment
1979:	250 mg/L	Federal Secondary Drinking Water Standard
1986:		No criteria in Gold Book
1988:	230 mg/L as NaCl 860 mg/L as NaCl	CAC AAC
1990:	15 mg/L 20 mg/L	327 IAC 2-1-6(j), in Lake Michigan
1991:	12 mg/L	Illinois Lake Michigan Std
1994:		House Bill 1126 authorizes mixing zones in Lake Michigan for all parameters

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TABLE A3-4. FLUORIDES CRITERIA APPLICATION HISTORY

DATE	CRITERIA	JUSTIFICATION/POINT OF APPLICATION
1963:	< 1.5 mg/L 1.5 to 3.0 mg/L	Excellent source of water supply Good source of water supply
December 1965:	Report of WQC Calumet Area-Lower Lake Michigan	
	1.0 mg/L 1.3 mg/L	Open Water (Chicago and Gary West Intakes)
	1.0 mg/L 1.3 mg/L	Inner Harbors (Hammond and East Chicago Intakes)
1968:	0.8 to 1.7 mg/L	Drinking water plant operating problems function of temperature
1972:	1.4 to 2.4 mg/L	Human Health and not removed by treatment
1979:	2.0 mg/L	Federal Secondary Drinking Water Standard
1986:		No criteria in Gold Book
1990:	1.0 mg/L	327 IAC 2-1-6(j), in Lake Michigan
1994:		House Bill 1126 authorizes mixing zones in Lake Michigan for all parameters

AUG 23 1994

TABLE A3-5. DISSOLVED IRON CRITERIA APPLICATION HISTORY

DATE	CRITERIA	JUSTIFICATION/POINT OF APPLICATION
1962:	0.30 mg/L	Aesthetic and Taste
1963:	0.1 to 1.0 mg/L	Aesthetic and taste considerations
December 1965:	Report of WQC Calumet Area-Lower Lake Michigan Effect of iron is to increase water treatment cost	
	0.15 mg/L 0.30 mg/L	Open Water (Chicago and Gary West Intakes)
	0.15 mg/L 0.30 mg/L	Inner Harbors (Hammond and East Chicago Intakes)
1979:	0.30 mg/L	Federal Secondary Drinking Water Standards
1986:	1,000 mg/L 0.30 mg/L	Fresh Acute Aquatic Life Water and Fish Ingestion
1990:	0.30 mg/L	327 IAC 2-1-6(j), in Lake Michigan
1994:		House Bill 1126 authorizes mixing zones in Lake Michigan for all parameters

AUG 23 1994

TABLE A3-6. DISSOLVED OXYGEN (DO) CRITERIA APPLICATION HISTORY

DATE	CRITERIA	JUSTIFICATION/POINT OF APPLICATION
1963:	4.0 to 7.5 (> 75 % sat)	Excellent source of water supply
	4.0 to 6.5 (> 60 % sat)	Good source of water supply
December 1965:	Report of WQC Calumet Area-Lower Lake Michigan Protection of fish and other aquatic life	
	> 90 % sat > 80 % sat	Open Water (Chicago and Gary West Intakes)
	> 80 % sat > 65 % sat	Inner Harbors (Hammond and East Chicago Intakes)
	> 90 % sat > 80 % sat	Shore Water (Bathing Beaches)
1968:	> 4.0 mg/L	
1976:	> 5.0 mg/L	Aquatic Life
1986:	4.0 to 6.5 mg/L	Acute and Chronic Freshwater Aquatic Life
1990:	7.0 mg/L	327 IAC 2-1-6(j), in Lake Michigan
1994:		House Bill 1126 authorizes mixing zones in Lake Michigan for all parameters

AUG 23 1994

PLICATION HISTORY

JUSTIFICATION/POINT OF APPLICATION

Excellent source of water supply
Good source of water supply

QC Calumet Area-Lower Lake Michigan
of fish and other aquatic life

Open Water (Chicago and Gary West Intakes)

Inner Harbors (Hammond and East Chicago Intakes)

Shore Water (Bathing Beaches)

Economic
Aquatic Life

Aquatic Life
Water and Fish Ingestion

327 IAC 2-1-6(j), in Lake Michigan

House Bill 1126 authorizes mixing zones
in Lake Michigan for all parameters

APPLICATION HISTORY

POINT OF APPLICATION

of water supply, requiring
such as filtration and disinfection

from the action of chlorine on

ake Michigan
ter when chlorinated

icago and Gary West Intakes)

mmond and East Chicago Intakes)

hing Beaches)

Supplies, Treatment Plant Can't

d Book

in Lake Michigan

authorizes mixing zones
for all parameters

TABLE A3-9. TOTAL PHOSPHORUS CRITERIA APPLICATION HISTORY

DATE	CRITERIA	JUSTIFICATION/POINT OF APPLICATION
December 1965:	Report of WQC Calumet Area-Lower Lake Michigan Prevent excessive algae and plankton growth	
	0.03 mg/L 0.04 mg/L	Open Water (Chicago and Gary West Intakes)
	0.05 mg/L 0.10 mg/L	Inner Harbors (Hammond and East Chicago Intakes)
	0.03 mg/L 0.04 mg/L	Shore Water (Bathing Beaches)
1968:	Narrative - Critical phosphorus concentrations will vary with other water quality characteristics. Phosphorus concentrations low enough so eutrophication of waters does not occur (0.01 to 0.2 mg/L).	
1986:		No criteria in Gold Book
1990:	0.03 mg/L 0.04 mg/L	327 IAC 2-1-6(j), in Lake Michigan
1991:	0.007 mg/L	Illinois Lake Michigan Std
1994:		House Bill 1126 authorizes mixing zones in Lake Michigan for all parameters

AUG 23 1994

TABLE A3-10. TOTAL DISSOLVED SOLIDS (TDS) CRITERIA APPLICATION HISTORY

DATE	CRITERIA	JUSTIFICATION/POINT OF APPLICATION
1962:	500 mg/L	Taste Threshold
1963:	2,000 to 4,000	Waters are not palatable, may not quench thirst, and may have a laxative action on new users.
	1,000 mg/L	Domestic Water Supply
	700 mg/L	Irrigation Water Supply
December 1965:	Report of WQC Calumet Area-Lower Lake Michigan Difficulties in water treatment, aesthetic value, background concentration	
	162 to 186 mg/L (1965 to 2000) 200 mg/L	Open Water (Chicago and Gary West Intakes)
	187 to 211 mg/L (1965 to 2000) 230 mg/L	Inner Harbors (Hammond and East Chicago Intakes)
1968:	500 mg/L	For Public Water Supply, Treatment Can't Remove, Mineral Taste, and Economic Effect (corrosion)
1976:	250 mg/L	Human health
1979:	500 mg/L	Federal Secondary Drinking Water Standard
1986:	250 mg/L	Water and Fish Ingestion
1990:	172 mg/L 200 mg/L	327 IAC 2-1-6(j), in Lake Michigan
1991:	180 mg/L	Illinois Lake Michigan Std
1994:		House Bill 1126 authorizes mixing zones in Lake Michigan for all parameters

AUG 23 1994

TABLE A3-11. SULFATES CRITERIA APPLICATION HISTORY

DATE	CRITERIA	JUSTIFICATION/POINT OF APPLICATION
1962:	250 mg/L	Protect health of new users of water
1963:	500 mg/L	250 mg/L limit is not based on taste or physiological effects other than a laxative action toward new users. Public water supplies with sulfate contents above this limit are commonly and constantly used without adverse effects.
December 1965:	Report of WQC Calumet Area-Lower Lake Michigan Difficulties in water treatment, aesthetic value, background concentration	
	23 to 30 mg/L (1965 to 2000) 50 mg/L	Open Water (Chicago and Gary West Intakes)
	35 to 45 mg/L (1965 to 2000) 75 mg/L	Inner Harbors (Hammond and East Chicago Intakes)
1968:	250 mg/L	For Public Water Supplies, Treatment Plant Does Little to Remove
1979:	250 mg/L	Federal Secondary Drinking Water Standard
1986:		No criteria in Gold Book
1990:	26 mg/L 50 mg/L	327 IAC 2-1-6(j), in Lake Michigan
1991:	24 mg/L	Illinois Lake Michigan Std
July 1992:	400/500 mg/L	Proposed Federal Primary MCL
1994:		House Bill 1126 authorizes mixing zones in Lake Michigan for all parameters

AUG 23 1994

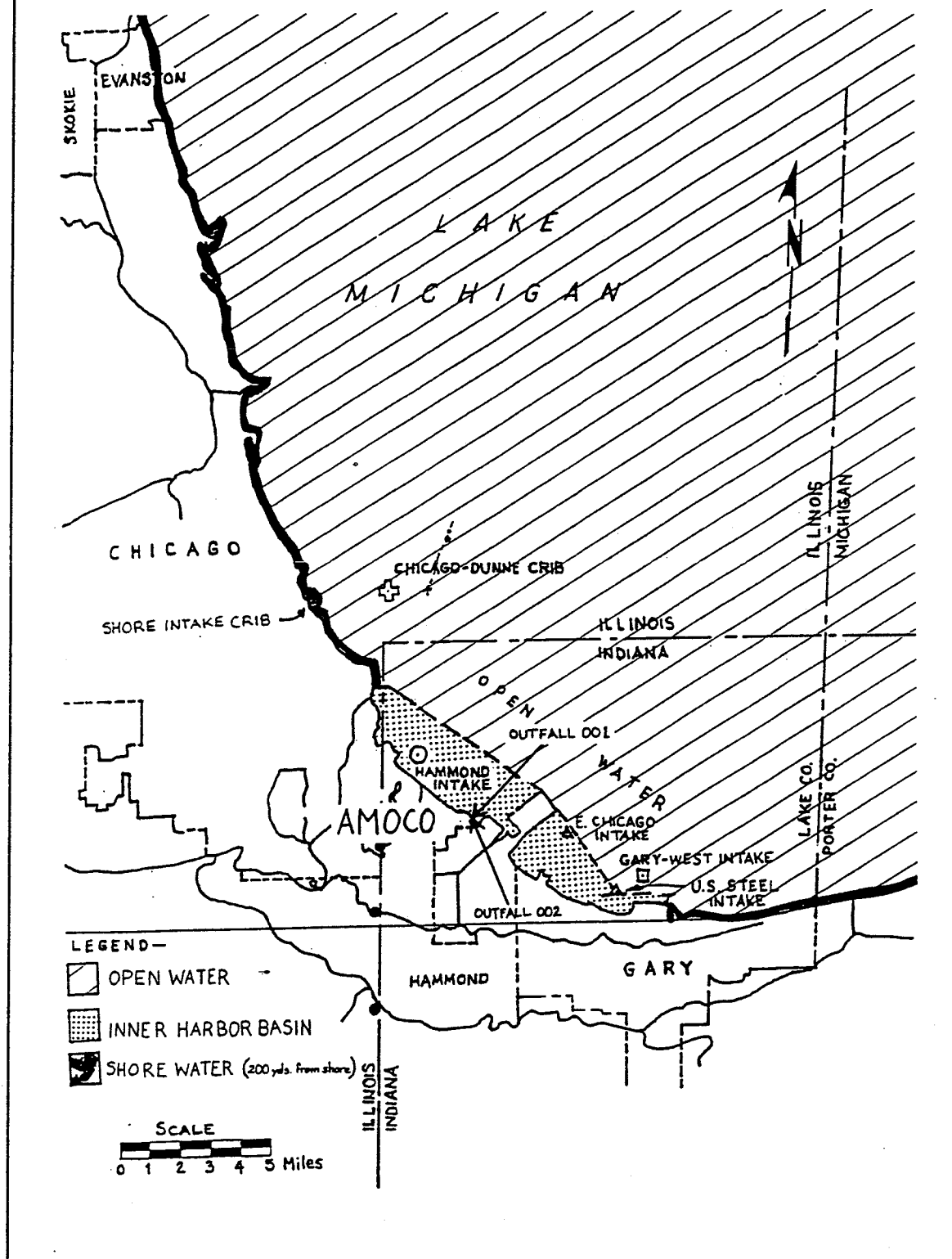
FIGURE A3-1. WATER QUALITY REGULATION TIMELINE

1899	REFUSE ACT (TO PREVENT IMPEDIMENTS TO NAVIGATION)
1943	STREAM POLLUTION CONTROL (SPC) CREATED
NOVEMBER 8, 1945	SPC1 WATER QUALITY (WQ) REGULATION
1948	FEDERAL WATER POLLUTION CONTROL ACT ('CONVENTIONALS')
JANUARY 1953	AMENDMENTS TO SPC 1
1956	FEDERAL WATER POLLUTION CONTROL ACT AMENDMENTS (MUNICIPAL GRANTS PROGRAM AND ENFORCEMENT)
DECEMBER 1963	AMENDMENTS TO SPC 1
DECEMBER 15, 1964	FEDERAL GOVERNMENT CALLED A CONFERENCE ON POLLUTION FOR SOUTH END OF LAKE MICHIGAN
1965	FEDERAL WATER QUALITY ACT (GIVES STATES AUTHORITY TO SET AND ENFORCE WQS)
DECEMBER 1, 1965	INDIANA GOVERNOR ADVISED FEDERAL GOVERNMENT THAT INDIANA WILL COMPLY WITH FWQA
JANUARY 4-5, 1966	TECHNICAL COMMITTEE REPORT ON WQ AND RECOMMENDATIONS, INCLUDING COMPLIANCE DATES, APPROVED BY CONFEREES
MARCH 15, 1967	POLLUTION ABATEMENT PROGRESS PRESENTED TO CONFEREES
MAY 5, 1967	SPC 1R FOR ALL WATERS ADOPTED BY BOARD; SPC 4 THRU 8 FOR SPECIFIC WATERS ADOPTED BY BOARD (TOXIC SUBSTANCES DEFINED)
JUNE 13, 1967	EFFECTIVE DATE FOR SPC RULES
JUNE 30, 1967	IMPLEMENTATION OF FWQA BY INDIANA
SEPTEMBER 1970	ADOPTION OF SPC 1R-3 TO REPLACES SPC 1R
FEBRUARY 1972	ADOPTION OF SPC 4-R (REPLACE SPC 4), SPC 7-R (REPLACES SPC 7 AND 8) AND NEW SPC 12 (ADDITION OF TEMPERATURE CRITERIA AND 1,000° APPLICATION)
1972	FEDERAL WATER POLLUTION CONTROL ACT (MUNICIPAL GRANTS, DISCHARGE PERMITS TO EPA)
MARCH 1973	ADOPTION OF SPC 1R-3 (REPLACE SPC 1R-2)
MARCH 1974	AMENDMENTS TO SOME PARTS SPC WQS
MAY 9, 1974	FEDERAL ELGs FOR PETROLEUM REFINING INDUSTRY
1977	CLEAN WATER ACT (CONVENTIONAL AND TOXIC POLLUTANTS)
1977	FEDERAL COURT REMAND OF CERTAIN PETROLEUM REFINING ELGs
FEBRUARY 1977	SPC 1R-4 ADOPTED (AMENDED SPC 1R-3) (REVISED WQS FOR USES, NONDEGRADATION POLICY, NARRATIVE STDs, WWT AND MIXING ZONE REQUIREMENTS) (EPA V DID NOT LIKE TEMPERATURE AND DO STANDARD)
MAY 1978	330 IAC 2-1 (SPC 4R-2) (NARRATIVE AND NUMERICA STANDARDS, DEFINITION OF INNER BASIN HARBOR CHANGED)
OCTOBER 18, 1982	FINAL ELGs FOR PETROLEUM REFINING INDUSTRY PROMULGATED
FEBRUARY 1984	AMENDMENTS TO SOME PARTS OF 330 IAC 1 AND 2
JULY 1985	AMENDMENTS TO SOME PARTS OF 330 IAC 1 AND 2
SEPTEMBER 1985	AMENDMENTS TO SOME PARTS OF 330 IAC 1 AND 2
SEPTEMBER 1987	AMENDMENTS TO SOME PARTS OF 330 IAC 1 AND 2
1987	WATER QUALITY ACT (CALLED CLEAN WATER ACT) (MAJOR REWRITE OF 1977 ACT, POSTPONED DEADLINE FOR ELGs, COMPREHENSIVE PROGRAM FOR TOXIC POLLUTANTS CONTROL REQUIRING STATES TO DEVELOP CONTROL STRATEGIES, STORMWATER)
JANUARY 1988	327 IAC 2-1 HEARING OF OFFICER'S SUMMARY (AMENDED AND REPLACED 330 IAC 1-1)
MARCH 3, 1990	327 IAC 2-1 AMENDED (LAKE MICHIGAN DESIGNATED AS STATE RESOURCE WATER, REVISED MIXING ZONE DEFINITION, LIMIT MIXING ZONES IN LAKES, 6(j) LIST PARED DOWN) ADDS 327 IAC 5-2-11,1, 5-3-4,1; REPEALS 327 IAC 2-7, 2-8, 2-9
DECEMBER 1992	FEDERAL WATER QUALITY STANDARDS, FINAL 40 CFR 131 SUBPART D

FIGURE A3-2. POINT-OF-APPLICATION TIMELINE

NOV. 8, 1945	<p>SPC1 WATER QUALITY (WQ) REGULATION</p> <p>(1) NARRATIVE STANDARDS APPLICABLE TO ALL WATERS; IF EXCEEDED, WATERS DEEMED "POLLUTED"</p> <p>(2) DISSOLVED OXYGEN (DO) CRITERIA APPLICABLE AFTER MIXING; LOWER CONCENTRATION TEMPORARILY TOLERATED</p> <p>(3) COLIFORM CRITERIA AT OR IN THE VICINITY OF INTAKE; BATHING</p>
MAY 5, 1967	<p>SPC 1R FOR ALL WATERS ADOPTED BY BOARD; SPC 4 THROUGH 8 FOR SPECIFIC WATERS ADOPTED BY BOARD; (TOXIC SUBSTANCES DEFINED)</p> <p>(1) NARRATIVE STANDARDS APPLICABLE TO ALL WATERS;</p> <p>(2) CRITERIA EITHER AT PUBLIC WATER INTAKE (PWI) OR RECREATION POINT; EXCEPT FOR AREAS ADJACENT TO OUTFALLS</p> <p>SPC 4</p> <p>(1) CRITERIA FOR OPEN WATERS AT GARY-HOBERT AND MICHIGAN CITY INTAKES</p> <p>SPC 5</p> <p>(1) CRITERIA FOR SHORE WATER AT BATHING BEACHES (e.g., WHITING, HAMMOND, EAST CHICAGO)</p> <p>SPC 6</p> <p>(1) CRITERIA FOR INNER HARBOR BASIN AT HAMMOND AND EAST CHICAGO WATER INTAKES (GEOGRAPHIC BOUNDARY USED TO DEFINE AREA, INCLUDES AMOCO)</p>
SEPTEMBER 1970	<p>ADOPTION OF SPC 1R-2 TO REPLACE SPC 1R</p> <p>(1) ADDED TEMPERATURE CRITERIA</p> <p>(2) DO CRITERIA "OUTSIDE THE MIXING ZONE"</p>
FEBRUARY 1972	<p>ADOPTION OF SPC 4-R (REPLACES SPC 4), SPC 7-R (REPLACES SPC 7 AND 8) AND NEW SPC 12; (ADDITION OF TEMPERATURE CRITERIA AND 1,000' APPLICATION)</p> <p>SPC 4R - WATERS OF LAKE MICHIGAN AND HARBOR AREAS</p> <p>(1) CRITERIA APPLICABLE EXCEPT FOR AREAS ADJACENT TO OUTFALLS, TEMPERATURE OUTSIDE 1,000'</p> <p>(2) INNER HARBOR GEOGRAPHIC BOUNDARY = SPC 6; CRITERIA FOR "EVALUATION"</p> <p>(3) SHORE AND OPEN WATERS OUTSIDE OF HARBOR AREAS; CRITERIA FOR "EVALUATION"</p>
MARCH 1973	<p>ADOPTION OF SPC 1R-3 (REPLACES SPC 1R-2)</p> <p>(1) WATER QUALITY STANDARDS APPLIED AT POINT OUTSIDE MIXING ZONE</p> <p>(2) MIXING ZONE CASE-BY-CASE DETERMINATION GUIDELINES ESTABLISHED</p>
FEBRUARY 1977	<p>SPC 1R-4 ADOPTED (AMENDED SPC 1R-3)(REVISED WATER QUALITY STANDARDS FOR USES, NONDEGRADATION POLICY, NARRATIVE STANDARDS, WWT AND MIXING ZONE REQUIREMENTS)(EPA V DID NOT LIKE TEMPERATURE AND DO STANDARDS</p> <p>(1) ADDED DEFINITIONS FOR MIXING ZONE, POLICY, AND WELL-BALANCE FISH COMMUNITY</p>
MAY 1978	<p>330 IAC 2-1 (SPC 4R-2) (NARRATIVE AND NUMERIC STANDARDS, DEFINITION OF INNER BASIN HARBOR CHANGED)</p> <p>(1) MINIMUM WQS APPLICABLE OUTSIDE MIXING ZONE; TEMPERATURE 1,000' ARC</p> <p>(2) 330 2-1-4(b)...OUTSIDE MIXING ZONE...(8)...SPECIFIC PARAMETERS APPLICABLE TO THE WATERS WITHIN..., AND THE OPEN WATERS (OUTSIDE HARBOR AREAS)</p>
FEBRUARY 1984	<p>330 IAC 1-1 - WATER QUALITY STANDARDS, GENERALLY</p>
SEPTEMBER 1987	<p>330 IAC 2-1 - BECAME 327 IAC 2-7, 2-8, 2-9</p>
JANUARY 1988	<p>327 IAC 2-1 HEARING OFFICER'S SUMMARY (AMENDED & REPLACED 330 IAC 1-1</p> <p>(1) TABLE 1 WQS OUTSIDE MIXING ZONE; GOLD BOOK CRITERIA AAC = END-OF-PIPE</p> <p>(2) DID NOT ADDRESS LAKE MICHIGAN, GCR, IHSC (330 IAC 2-1)</p> <p>(3) REVISED DEFINITION OF MIXING ZONE</p>
MARCH 3, 1990	<p>327 IAC 2-1 AMENDED (LAKE MICHIGAN DESIGNATED AS A STATE RESOURCE WATER, REVISED MIXING ZONE DEFINITION, LIMIT MIXING ZONES IN LAKES, 6(j) LIST PARED DOWN) ADDS 327 IAC 5-2-11.1, 5-3-4.1; REPEALS 327 IAC 2-7, 2-8, 2-9</p> <p>(1) TABLE 1 WQS OUTSIDE MIXING ZONE; AAC = FAV; TDS, F, SO, "IN" WATERS</p> <p>(2) LAKE MICHIGAN LIMITS APPLICABLE "IN" WATERS; NO MIXING ZONE FOR LAKE DISCHARGERS</p>
MARCH 18, 1994	<p>HOUSE BILL 1126 AUTHORIZES MIXING ZONES IN LAKE MICHIGAN FOR ALL PARAMETERS</p>

**FIGURE A3-3. LOCATION MAP
CALUMET - LOWER LAKE MICHIGAN**



AUG 23 1994

ATTACHMENT 4

**COMPARISON OF 75TH PERCENTILE OF
OUTFALL 001 DATABASE FOR pH AND TEMPERATURE**



**TABLE 4A. COMPARISON OF 75th PERCENTILE OF OUTFALL 001 DATABASE
FOR pH AND TEMPERATURE**

PARAMETER	UNITS	WLA (a)		OWM-1 (b)	
		SUMMER (c)	WINTER (c)	SUMMER (d)	WINTER (d)
pH	s.u.	7.8	7.7	7.8	7.7
Temperature	°C	33	29	33	26

NOTES:

(a) Source: Wasteload Allocation of Grand Calumet River - Indiana Harbor Ship Canal (WLA), September 1992

(b) Source: Technical Release OWM-1 Procedure for Developing Water Quality-Based NPDES Permit Limitations for Toxic P

(c) WLA defines summer as July 1 through November 30; winter is defined as October 1 through June 30.

(c) OWM-1 defines summer as May 1 through November 30; winter is defined as December 1 through April 30.

ATTACHMENT 5

BIBLIOGRAPHY



NONCOMPLIANCE 24-HOUR NOTIFICATION FAX REPORT

From-ENVIRONMENTAL CONTROL
 09-2007 03:07pm

+219 473 5378

T-677 P.002/003 F-663



State Form 52415 (10-05)
 Indiana Department of Environmental Management
 Office of Water Quality

INSTRUCTIONS:

Complete all parts of this form and fax it to Office of Water Quality, Compliance Evaluation Section at (317) 232-8637 or (317) 232-8406. Thorough completion of this report will satisfy the Office of Water Quality (OWQ) telephone and 5-day written noncompliance notification reporting requirements of your NPDES permit. To speak with someone in OWQ, call (317) 232-8670. my noncompliance which may pose a significant danger to human health or the environment must be immediately reported to the Emergency response Section spill response line at: (317) 233-7745 or toll free within Indiana at (888) 233-7745.

NPDES Permit Number: IN 0000108		Reporting Date: 02/09/07-UPDATE	
Facility Name: BP Products NA, Inc. Whiting Business Unit		Lake	
County:		Phone Number: 219-473-3393	
Individual Reporting: R. M. Herrera, Env. Engr.			
NONCOMPLIANCE INFORMATION			
Parameter:	Parameter:	Permit Limit: (Units/Daily/Weekly/Ave/Max/Min)	Monitored Value:
O&G net	5 mg/l grab 3x week daily max	5 mg/l grab 3x week daily max	6.9 mg/l
TOC net	5 mg/l grab 5x week daily max	5 mg/l grab 5x week daily max	10.6 mg/l-UPDATE
Date:	Outfall:	Date:	Outfall:
02/07/07	002	02/07/07	002

Description of the Noncompliance and its Cause:

The Refinery Sulfur Recovery Unit (SRU) had a heat exchanger equipment failure (tube leak) on E292 leaking Lube oil into the Once Through Cooling Water System (outfall 002 OTCW). The exchanger leaked approximately 500 gallons of oil into the system from approximately 6:00am to 8:00 am when the exchanger was shut down. The exchanger services K-202 air compressor. This machine was shut down and the exchanger was taken out of service. The exchanger will have to be pulled and a repair made to the damaged tube.

At approximately 7:40 am the operations personnel at the WWTP saw the heavy oil coming into the #6 separator and immediately called for the haz mat team to help secure the outfall. 4 Vac trucks were also called to help reduce the oil in the separator. Initial visual inspection of the outfall saw no visible oil sheen. However a small ribbon oil sheen was seen at approx 8:00 am from the Haz mat team member. IDEM, NRC and LEPC were called and notified of the visible sheen at the outfall.

NPDES Grab samples had been taken as planned at 8am and came back with high TOC and O&G exceeding our permit limits for net daily max values. Additional grab samples were requested and taken at 2:00pm and 10:00 pm on 2/7/07 as well as 6 am on 2/8/07. We are currently awaiting results of these samples. Description of the Period of Noncompliance, including Exact Dates and Time, and if the Noncompliance has not been Corrected, the Anticipated Time it is Expected to Continue:

The source of the contaminants has been isolated as of 8am 2/7/08. We are awaiting results from the additional grab samples to determine when the O&G and TOC values were back in compliance. In addition, the small oil sheen that was noted at 8am had dissipated within an hour, by 9 am 2/7/07 and no other visible sheen has been seen since.

AN UPDATED FAX NOTE WILL BE SENT WHEN additional analytical RESULTS ARE IN.

UPDATE: additional sampling taken the same day at 2pm 02/07/07 shows we are back in compliance with net less than 5 mg/l net value for both TOC and O&G; 02/07/07 2 pm O&G net 0 mg/l additional sample 02/07/07 2 pm TOC net 1.1 mg/l additional sample 02/08/07 6 am O&G net 0 mg/l additional sample 02/08/07 6 am TOC net 1.1 mg/l additional sample 02/09/07 6 am O&G net 0 mg/l normal compliance sampling 02/09/07 6 am TOC net 0.8 mg/l normal compliance sampling

From-ENVIRONMENTAL CONTROL
+219 473 5379
T-677 P.003/003 T-003
* Taken or Planned to Reduce, Eliminate, and Prevent Recurrence of the Noncompliance:
investigation of the incident will be reviewed for adequacy. The recommendations from the investigation will be
check for exchanger leaks will be reviewed for adequacy. The recommendations from the investigation will be
implemented.

CERTIFICATION AND SIGNATURE
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system
designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons
who manage the system, or those persons directly responsible for gathering the information, the information submitted, to the best of my knowledge
and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine
and imprisonment for knowing violations.
DATE: 2/2/07
SIGNATURE: *[Signature]*



Fax Message
BP Products North America Inc
Whiting Business Unit
2815 Indianapolis Blvd.
P. O. Box 710 - MC 122
Whiting, IN 46394-0710
Telephone: 219-473-3393
Fax: 219-473-5379
e-mail: Rosalie.Herrera@bp.com

Date: 2/9/07

From: Rose Herrera
Team: Health, Safety, Security & Environmental
Environmental Engineer

Pages to follow: 2

☐ CONFIDENTIAL

☒ ORDINARY

☐ URGENT

Copy to:

To:

IDEM

Company:

DWA

Name:

Fax no:

317-232-8637

Message:

UPDATED info from 2/8/07 FAX with
Additional Analysis data showing compliance Again same day
note that TOC net was initially reported as 12.5 mg/L
However the net value is 10.6 mg/L (12.5 mg/L is the outlet
value, not the net value)

EMB

COMPLIANCE 24-HOUR NOTIFICATION FAX REPORT

52415 (10-05)
Department of Environmental Management
Water Quality

Complete all parts of this form and fax it to Office of Water Quality, Compliance Evaluation Section at (317) 232-8637 or 232-8406. Thorough completion of this report will satisfy the Office of Water Quality (OWQ) telephone and 5-day written noncompliance notification reporting requirements of your NPDES permit. To speak with someone in OWQ, call (317) 232-8670.

Use which may pose a significant danger to human health or the environment must be immediately reported to the Emergency spill response line at: (317) 233-7745 or toll free within Indiana at (888) 233-7745.

Facility Information		NPDES Permit Number: IN 0000108		County: Lake		Individual Reporting: BP Products NA, Inc. Whiting Business Unit		City Name: R. M. Herrera, Env. Engr.	
Reporting Date: 02/08/07		Phone Number: 219-473-3393		Noncompliance Information		Parameter: O&G net		Date: 02/07/07	
Monitored Value: 6.9 mg/l		Permit Limit: (Units/Daily/Weekly/Ave/Max/Min) 5 mg/l grab 3x week daily max		Parameter: TOC net		Outfall: 002		Date: 02/07/07	
Monitored Value: 12.5 mg/l		Permit Limit: (Units/Daily/Weekly/Ave/Max/Min) 5 mg/l grab 5x week daily max		Parameter: TOC net		Outfall: 002		Date: 02/07/07	

Description of the Noncompliance and its Cause: The Refinery Sulfur Recovery Unit (SRU) had a heat exchanger equipment failure (tube leak) on E292 leaking Lube oil into the Once Through Cooling Water System (outfall 002 OTCW). The exchanger leaked approximately 500 gallons of oil into the system from approximately 6:00am to 8:00 am when the exchanger was shut down. The exchanger services K-202 air compressor. This machine was shut down and the exchanger was taken out of service. The exchanger will have to be pulled and a repair made to the damaged tube.

At approximately 7:40 am the operations personnel at the WWTP saw the heavy oil coming into the #6 separator and immediately called for the haz mat team to help secure the outfall. 4 Vac trucks were also called to help reduce the oil in the separator. Initial visual inspection of the outfall saw no visible oil sheen. However a small ribbon oil sheen was seen at approx 8:00 am from the Haz mat team member. IDEM, NRC and LEPC were called and notified of the visible sheen at the outfall.

NPDES Grab samples had been taken as planned at 6am and came back with high TOC and O&G exceeding our permit limits for net daily max values. Additional grab samples were requested and taken at 2:00pm and 10:00 pm on 2/7/07 as well as 6 am on 2/8/07. We are currently awaiting results of these samples.

Description of the Period of Noncompliance, Including Exact Dates and Time, and if the Noncompliance has not been Corrected, the Anticipated Time it is Expected to Continue:

The source of the contaminants has been isolated as of 8am 2/7/08. We are awaiting results from the additional grab samples to determine when the O&G and TOC values were back in compliance. In addition, the small oil sheen that was noted at 8am had dissipated within an hour, by 9 am 2/7/07 and no other visible sheen has been seen since.

AN UPDATED FAX NOTE WILL BE SENT WHEN additional analytical RESULTS ARE IN.

Steps Taken or Planned to Reduce, Eliminate, and Prevent Recurrence of the Noncompliance: An investigation of the incident will determine the cause of the tube failure and a review of the controls we have in place to check for exchanger leaks will be reviewed for adequacy. The recommendations from the investigation will be implemented.

CERTIFICATION AND SIGNATURE

I of law that this document and all attachments were prepared under my direction or supervision in accordance with a system that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and/or imprisonment for knowing violations.

DATE:

2/8/07

John A. ...

Fax Message

BP Products North America Inc
Whiting Business Unit
2815 Indianapolis Blvd.
P. O. Box 710 - MC 122
Whiting, IN 46394-0710

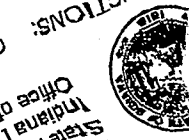
Telephone: 219-473-3393
Fax: 219-473-5379
e-mail: Rosalie.Herrera@bp.com

Date:

2/8/07

Any noncompliance
Response Section
[Stamp: Health, Safety, Environment]

INSTRUCTIONS: 7
State Form
Indiana I
Office of



February 2007 09:48 am
NONCE

☐ CONFIDENTIAL

☒ ORDINARY

☐ URGENT

Pages to follow: 2

Copy to:

ITEM

24 hour Non-Compliance

Company:

Name:

Fax no:

317-232-8637

Message:

Report Non-Compliance 2/2/07

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